What Will You and Your Students Do in the GLOBE Program?

Your students will be carrying out a series of investigations that scientists have designed to gather data about the Earth and how it functions as a global system. Students will be using instruments and their own senses to observe the environment at multiple sites near your school. They will record the data they gather, save it in a permanent school data record, and send it to the GLOBE Student Data Server (our database) using the Internet and the World Wide Web or email where the Web is not readily available.

In addition to carrying out these measurements in collaboration with GLOBE scientists, you have the option of doing some of the learning activities with your students, either as described here, or in whatever form is most appropriate for your local curriculum needs.

Do not worry if you're not an experienced science teacher. The learning materials provide a range of activities, from beginning activities to be used by teachers of young children who might have had little experience with science, to advanced activities for the advanced level. Each learning activity provides the background information needed to do the activity.

Each of the protocols and learning activities includes a designation of recommended grade levels, in three categories:

Beginning - Ages 5-9 years
Intermediate - Ages 10-13 years
Advanced - Ages 14-18

However, do not feel locked in by these age level distinctions. Many of the activities can be adapted to lower or higher levels, based on your students' needs and abilities.

Ultimately, your GLOBE classroom and the study sites where you make the measurements are likely to be very busy places for science and learning. Your students will observe and make measurements, record their data, come to understand accuracy and precision, share their data with other students and scientists, conduct labs, formulate questions, test hypotheses, and develop theories to make sense of the data. They will use a variety of scientific instruments, calibrate those instruments, and try to understand potential sources of error in the measurements they take with the instruments. They will work with real data, some that they collect and some that they obtain from other GLOBE schools around the world.

There are six key educational elements of the GLOBE program.

1. Selecting local study and sample sites - Based on guidelines provided here, you will pick local study sites for your recurring measurements along with sample sites which the students will normally visit only once. For example, the Hydrology Study Site should be a nearby river, lake, bay, ocean, or pond. All of the study and sample sites will be within your 15 km x 15 km GLOBE Study Site, with your school at its center.
2. Doing measurements carefully on a regular schedule - Students should begin with one measurement and then, over the course of a few months, add new measurements one-by-one as they learn how to do them. As their teacher, you need to make sure your students understand the measurements and do them accurately. Most of the measurement protocols specify a regular schedule for taking data and some require observations at specific times. Weather measurements, which are daily, can be done most easily at a sight adjacent to your school. Others, such as the weekly hydrology measurements, will require going to the selected study site. Working with your students, their parents, and your school community to have measurements made during weekends and school vacations is also important in obtaining an accurate record of your local environment for use by scientists and your students.
3. Submitting the data - All data should be submitted to the GLOBE Student Data Server. The most common way to submit data is by computer and the Internet.
4. Doing the learning activities - Each investigation has a set of learning activities that help your students learn more about the science domains, the instruments and procedures for the measurements, and the ways that students and scientists can use the data collected. We hope you will use these learning activities, either as described, or by adapting them to your local needs. Your experiences in using these learning activities or new learning activities you develop can be shared with other GLOBE teachers to benefit the entire program.
5. Using GLOBE systems on the Internet to explore and communicate - GLOBE has created some powerful (and easy to use) computer software, which enables you to communicate with other schools and with the GLOBE scientists. It also lets your students see and interact with local and worldwide maps on which the GLOBE data are displayed.
6. Promoting student investigations - Ultimately, our hope is that your students will do their own investigations at local sites, or by using the GLOBE software and data collected by other students worldwide. Your students might even make some new scientific discoveries of their own!